



SEQUENCE LISTING

<110> Dong, Zheng Xin

<120> Analogues of GLP-1

<130> 00537-186002

<140> US 09/857,636

<141> 2001-06-07

<150> PCT/EP99/09660

<151> 1999-12-07

<150> US 60/111,255

<151> 1998-12-07

<150> US 09/206,601

<151> 1998-12-07

<160> 415

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 30

<212> PRT

<213> Homo sapiens

<400> 1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Gly | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 2

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 2

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 3  
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<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N-alpha-HEPES-His  
 (N-alpha-(4-(2-hydroxyethyl)-1-piperazine-ethanesulfonic  
 acid)-histidine)

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 3  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 4  
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 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = Na-HEPA-His  
 (N-alpha-(4-(2-hydroxyethyl)-1-piperazineacetyl)-  
 histidine)

<221> VARIANT  
 <222> 2,29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 4  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 5  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 5  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1                      5                      10                      15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                     20                      25                      30

<210> 6  
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 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 6  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1                      5                      10                      15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
                     20                      25                      30

<210> 7  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 7

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 8

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 8

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 9

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29



<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 9

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 10

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<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-dodecanesulfonyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 10

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 11

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa =

## N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 11

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 12

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 30

&lt;223&gt; Xaa = 1-(4-tetradecyl-piperazine)asparagine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 12

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 13

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 30

&lt;223&gt; Xaa = (1-tetradecylamino)asparagine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

<400> 13

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

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<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222> 31

<223> Xaa = beta-alanine

<221> VARIANT

<222>

<223> Xaa = this sequence has a hydroxylated c-terminus

<400> 14

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 15

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 15

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 16

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 16

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 17

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2,29

<223> Xaa = alpha-aminoisobutyric acid

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 17

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 18

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 18

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Xaa | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

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<211> 30

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<223> Mutagen

<221> VARIANT

<222> 2,29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 19

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 20

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-alanine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 20  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Glu Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 21  
 <211> 30  
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 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2,29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 21  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 22  
 <211> 30  
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<220>  
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<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 22

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 23

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 30

&lt;223&gt; Xaa = N-epsilon-decanoyl-lysine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has a hydroxylated c-terminus

&lt;400&gt; 23

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 24

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; Xaa = N-epsilon-decanoyl-lysine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has a hydroxylated c-terminus

&lt;400&gt; 24

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 25  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-alanine

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-4-(2-aminoethyl)-1-carboxymethyl-piperazine-decanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 25  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
                   20                  25                  30

<210> 26  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 31  
 <223> Xaa = Ava (5-aminovaleric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = Ado (12-aminododecanoic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 26  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly



|     |     |     |     |
|-----|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Gln | Ala | Ala | Arg |
|     | Glu | Phe | Ile |
|     | Ala | Trp | Leu |
|     |     | Val | Arg |
|     |     | Xaa | Xaa |
|     |     |     | Xaa |
|     |     |     | Xaa |

<210> 27  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = Ava (5-aminovaleric acid)

<221> VARIANT  
 <222> 33  
 <223> Xaa = Ado (12-aminododecanoic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|   |
|---|
| <400> 27  |
| His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly |
| 1 5 10 15   |
| Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Asp Xaa |
| 20 25 30  |
| Xaa   |

<210> 28  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 31  
 <223> Xaa = Aun (11-aminoundecanoic acid)

|   |
|---|
| <400> 28  |
| His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly |
| 1 5 10 15   |
| Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa     |
| 20 25 30  |

<210> 29  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 11, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<400> 29  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Xaa Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 30  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 31  
 <223> Xaa = D-Asp

<221> VARIANT  
 <222> 32  
 <223> Xaa = Ava (5-aminovaleric acid)

<221> VARIANT  
 <222> 33  
 <223> Xaa = Aun (11-aminoundecanoic acid)

<400> 30  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa Xaa  
 20 25 30  
 Xaa

<210> 31  
 <211> 30

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 31  
 His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 32  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 32  
 His Ser Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 33  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 33

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 34

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 34

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Gly | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 35

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 35

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Lys | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |

20

25

30

<210> 36  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 36  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Leu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 37  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 37  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Lys Lys Xaa Arg  
 20 25 30

<210> 38  
 <211> 30  
 <212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 38

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Lys | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Leu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 39

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = D-Arg

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 39

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Gly | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 40

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 31  
 <223> Xaa = D-Arg

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 40  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg Xaa  
 20 25 30

<210> 41  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 21  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 41  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Xaa Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 42  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT

<222> 2, 21  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29, 31  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 42  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Xaa Phe Ile Ala Trp Leu Val Lys Xaa Arg Xaa Arg  
 20 25 30

<210> 43  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 21  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29, 31  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 43  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Xaa Phe Ile Ala Trp Leu Val Lys Xaa Arg Xaa Arg  
 20 25 30

Arg

<210> 44  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)



<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 44

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Lys | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Lys | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 45

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 45

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Lys | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 46

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 46

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg | Gly | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 47

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 47

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 48

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = D-Arg

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 48

His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |     |     |     |     |     |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |

<210> 49  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 49 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His      | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1        |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |     |
| Gln      | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg | Arg |     |
|          |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 50  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 50 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His      | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1        |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |     |
| Gln      | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Phe | Leu | Val | Lys | Xaa | Arg |     |     |
|          |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 51

<211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 51  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Phe Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 52  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 25  
 <223> Xaa = Nal (naphthylalanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 52  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Xaa Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 53  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 22, 25

<223> Xaa = Nal (naphthylalanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 53

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Xaa | Ile | Ala | Xaa | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 54

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 25

<223> Xaa = Nal (naphthylalanine).

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 54

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Xaa | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 55

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 55

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Phe | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 56

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 13, 25

<223> Xaa = Nal (naphthylalanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 56

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Xaa | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Xaa | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 57

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 6, 25

<223> Xaa = Nal (naphthylalanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 57

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Xaa | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Xaa | Leu | Val | Lys | Xaa | Arg |     |     |

20

25

30

&lt;210&gt; 58

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 30

&lt;223&gt; Xaa = N-epsilon-decanoyl-lysine

&lt;400&gt; 58

His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

1

5

10

15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa

20

25

30

&lt;210&gt; 59

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 20

&lt;223&gt; Xaa = N-epsilon-decanoyl-lysine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 59

His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

1

5

10

15

Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg

20

25

30

&lt;210&gt; 60

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-dodecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 60  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 61  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 31  
 <223> Xaa = O-decanoyl-serine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 61  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg Xaa  
 20 25 30

<210> 62  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen



<221> VARIANT  
 <222> 2, 21  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29, 31  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 33  
 <223> Xaa = N-epsilon-octanoyl-lysine

<400> 62  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Xaa Phe Ile Ala Trp Leu Val Lys Xaa Arg Xaa Arg  
 20 25 30  
 Xaa

<210> 63  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 31  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 63  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa  
 20 25 30

<210> 64  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 31  
 <223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 64  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa  
 20 25 30

<210> 65  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 31  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 65  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa  
 20 25 30

<210> 66  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = A5c (1-amino-1-cyclopentanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 66

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Gly | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 67

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = Tma-His (N,N-tetramethylamidino-histidine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 67

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Gly | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 68

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 31  
 <223> Xaa = Aec (4-(2-aminoethyl)-1-carboxymethyl-piperazine)  
  
 <221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus  
  
 <400> 68  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg Xaa  
 20 25 30  
  
 <210> 69  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Mutagen  
  
 <221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)  
  
 <221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)  
  
 <221> VARIANT  
 <222> 32  
 <223> Xaa = Aec (4-(2-aminoethyl)-1-carboxymethyl-piperazine)  
  
 <221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus  
  
 <400> 69  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg Gly Xaa  
 20 25 30  
  
 <210> 70  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Mutagen  
  
 <221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)  
  
 <221> VARIANT  
 <222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 31, 32

<223> Xaa = Aec (4-(2-aminoethyl)-1-carboxymethyl-piperazine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 70

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 71

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 71

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 72

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 72

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 73  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N-alpha-Me-His (N-methyl histidine)

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 73  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 74  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N-alpha-Me-His (N-methyl histidine)

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 74  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg

20 25 30

<210> 75  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N-alpha-Me-His (N-methyl histidine)

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 75  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 76  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N-alpha-Me-His (N-alfa-methyl histidine)

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 76  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 77  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 77  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 78  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = A5c (1-amino-1-cyclopentanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 78  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 79  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence



<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = D-Ala

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 79

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 80

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A5c (1-amino-1-cyclopentanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 80

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 81

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 24, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 81

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Xaa | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 82

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 19, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 82

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Xaa | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 83

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 10, 14

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 83

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Xaa | Ser | Ser | Tyr | Xaa | Glu | Gly |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |     |     |     |     |     |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |

<210> 84  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 10, 23, 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 84 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His      | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Xaa | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln      | Ala | Ala | Lys | Glu | Phe | Xaa | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 85  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 14, 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 85 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His      | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Xaa | Glu | Gly |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln      | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 86

<211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 14  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 86  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Xaa Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 87  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 87  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Lys Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 88  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 14

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 88

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Xaa | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Xaa | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 89

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 23, 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 89

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Xaa | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 90

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 23, 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 90

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Xaa | Ala | Lys | Glu | Phe | Xaa | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 91

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 6

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 91

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Xaa | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 92

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 14

<223> Xaa = Cha (alpha-amino acid cyclohexylalanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 92

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Xaa | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 93

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 27

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 93

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Xaa | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 94

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 10,14

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 94

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Xaa | Ser | Ser | Tyr | Xaa | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 95  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 16  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Xaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 96  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 16, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Xaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 97  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence



<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 97

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Xaa | Ala | Lys | Glu | Phe | Glu | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 98

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 19, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 98

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Glu | Xaa | Xaa | Lys | Glu | Phe | Glu | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 99

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 19, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 10,14, 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 99

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Xaa | Ser | Ser | Tyr | Xaa | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Glu | Xaa | Xaa | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 100

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 100

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 101

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A5c (1-amino-1-cyclopentanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 101

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 102

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 102

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Xaa | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 103

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 24

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 103

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Xaa | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 104

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 19

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 104

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Xaa | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 105

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 10, 23, 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 105

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Xaa | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Xaa | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 106

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 14, 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 106

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Xaa | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 107

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 14,  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 107  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Xaa Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 108  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 108  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Lys Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 109  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 14

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 109

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Xaa | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Xaa | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 110

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 23, 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 110

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Xaa | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 111

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 23, 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 111  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Xaa Ala Lys Glu Phe Xaa Ala Trp Xaa Val Lys Xaa Arg  
 20 25 30

<210> 112  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 6  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 112  
 His Xaa Glu Gly Thr Xaa Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 113  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen



<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 14  
 <223> Xaa = Cha (alpha-amino acid- cyclohexylalanine)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 113  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Xaa Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 114  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 27  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 114  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Xaa Lys Xaa Arg  
 20 25 30

<210> 115  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 16, 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 115

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Xaa |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 116

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 16

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 116

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Xaa |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 117

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 117

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 118

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 118

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Xaa | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 119

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 119

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Xaa | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 120

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 19

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 120

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Xaa | Xaa | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 121  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 19  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 10,14, 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 121  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Xaa Ser Ser Tyr Xaa Glu Gly  
   1                  5          10                  15  
 Glu Xaa Xaa Lys Glu Phe Ile Ala Trp Xaa Val Lys Xaa Arg  
           20                  25                  30

<210> 122  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = D-Arg

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 122  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5          10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
           20                  25                  30

<210> 123

<211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = D-Lys

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 123  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
 20 25 30

<210> 124  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = D-Arg

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 124  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
 20 25 30

<210> 125  
 <211> 30

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = D-Lys

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 125  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
 20 25 30

<210> 126  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 126  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 127  
 <211> 30  
 <212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 127

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 128

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 128

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 129

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)



<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 129

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 130

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 130

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Gly |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 131

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 131

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 132

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222> 31

<223> Xaa = D-Ala

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 132

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 133

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2,29,31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 133

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 134

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 31

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 134

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 135

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 135

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 136

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222> 31

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 136

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Gly | Xaa | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 137

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 137

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Gly | Xaa | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 138

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 31

<223> Xaa = Ado (12-aminododecanoic acid)

<221> VARIANT

<222>

<223> this sequence has a hydroxylated c-terminus

<400> 138

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 139

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 31

<223> Xaa = Ado (12-aminododecanoic acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 139

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 140  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222> 31  
 <223> Xaa = D- Ala

<221> VARIANT  
 <222>  
 <223> this sequence has a hydroxylated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Gly | Xaa | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 141  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has a hydroxylated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile |
|     |     |     |     | Ala | Trp | Leu |
|     |     |     |     |     | Val | Arg |
|     |     |     |     |     |     | Gly |
|     |     |     |     |     |     | Arg |
|     |     |     |     |     |     | Xaa |
|     |     |     |     |     |     | Xaa |
|     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |

<210> 142  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 31  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 32  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has a hydroxylated c-terminus

|   |
|---|
| <400> 142   |
| His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly |
| 1 5 10 15   |
| Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Gly Arg Xaa Xaa |
| 20 25 30  |

<210> 143  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|   |
|---|
| <400> 143   |
| His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly |
| 1 5 10 15   |

Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 144  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 144  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 145  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 145  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 146  
 <211> 30



<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 146  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 147  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 147  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
                   20                  25                  30

<210> 148  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 148  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 149  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 149  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 150  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 150  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 151  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 151  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 152  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 152

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 153

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 153

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 154

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 154

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 155

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 155

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 156

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 156

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 157

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 157

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 158

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2,29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 158

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 159

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 159

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 160

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 160

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 161  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 162  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>



<223> this sequence has an amidated c-terminus

<400> 162

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 163

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 163

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 164

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 164

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 165

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 165

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 166

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 166

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |

20

25

30

<210> 167  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 167  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
                   20                  25                  30

<210> 168  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 168  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
                   20                  25                  30

<210> 169  
 <211> 30  
 <212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 169

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 170

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 170

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 171

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 171  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 172  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 172  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 173  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 173

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 174

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 174

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 175

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 175

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 176

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 176

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 177

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 177

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
                   20                  25                  30

<210> 178  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 178  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
                   20                  25                  30

<210> 179  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 179  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
                   20                  25                  30

<210> 180  
 <211> 30



<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 180  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
                   20                  25                  30

<210> 181  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 181  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
                   20                  25                  30

<210> 182  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 182  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
                   20                  25                  30

<210> 183  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 183  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
                   20                  25                  30

<210> 184  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> CONFLICT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 184  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 185  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 185  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Gly Xaa  
 20 25 30

<210> 186  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 186

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 187

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 187

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 188

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 188

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |     |     |     |     |     |     |     |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 189  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 189 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln       | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|           |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 190  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 190 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln       | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|           |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 191

<211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 191  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa Xaa  
                   20                  25                  30

<210> 192  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 192  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa Xaa  
                   20                  25                  30

<210> 193  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 193

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 194

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> CONFLICT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 194

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 195

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 195

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 196

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 196

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 197

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine



<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 197

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 198

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 198

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 199

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> Xaa = N-epsilon-octanoyl-lysine

<400> 199

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 200  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 201  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 202  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 202  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 203  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 203  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 204

<211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 204  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
                   20                  25                  30

<210> 205  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
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 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 205  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg

20

25

30

<210> 206  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
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 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 206  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
 20 25 30

<210> 207  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
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 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 207

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 208

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 208

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 209

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 209

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 210

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 210

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 211

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 211  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
 20 25 30

<210> 212  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 212  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
 20 25 30

<210> 213  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen



<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 213  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
 20 25 30

<210> 214  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 214  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
 20 25 30

<210> 215  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 215

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 216

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 216

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 217

<211> 30

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 217  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Lys Arg Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
                   20                  25                  30

<210> 218  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 218  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Lys Arg Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
                   20                  25                  30

<210> 219  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 219  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Lys Arg Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
           20                  25                  30

<210> 220  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 220  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile |
|     |     |     |     | Ala | Trp | Leu |
|     |     |     |     |     | Val | Lys |
|     |     |     |     |     |     | Xaa |
|     |     |     |     |     |     | Xaa |
|     |     | 20  |     | 25  |     | 30  |

<210> 221  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 221 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln       | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Xaa |     |     |
|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|           |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 222  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 222

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 223

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 223

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 224

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 224

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 225

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 225

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 226

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 226

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 227

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 227

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 228

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29



<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 228

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 229

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 229

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 230

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 230

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 231

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 231

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 232

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 232  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Lys Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 233  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 233  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 234  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 234

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 235

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 235

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 236

<211> 30

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 236  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
                   20                  25                  30

<210> 237  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 237  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Xaa Val Arg Xaa Arg  
                   20                  25                  30

<210> 238  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 238  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Xaa Val Arg Xaa Arg  
 20 25 30

<210> 239  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 239  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile |
|     |     |     |     | Ala | Trp | Xaa |
|     |     |     |     | Val | Arg | Xaa |
|     |     |     |     |     |     | Arg |
|     |     | 20  |     | 25  |     | 30  |

<210> 240  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|   |
|---|
| <400> 240   |
| His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly |
| 1 5 10 15   |
| Gln Ala Ala Lys Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg         |
| 20 25 30  |

<210> 241  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 241

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 242

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 242

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 243

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine



<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 243

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 244

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 244

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 245

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 245

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 246

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 246

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 247

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 247

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 248

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 248

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 249

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 249  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Xaa Val Lys Xaa Xaa  
                   20                  25                  30

<210> 250  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 250  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Xaa Val Lys Xaa Xaa  
                   20                  25                  30

<210> 251  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 251

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 252

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 252

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 253

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 253

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 254

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 254

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 255

<211> 30

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 255  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Xaa Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 256  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 256  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Xaa Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 257  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 257  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Xaa Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 258  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 258  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Xaa Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
                   20                  25                  30

<210> 259  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)



<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 259  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Xaa Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 260  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 260  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Xaa Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 261  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 261

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Xaa | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 262

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 262

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Xaa | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 263

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 263

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |     |     |     |     |     |     |     |
| Gln | Xaa | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |

<210> 264  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|   |
|---|
| <400> 264   |
| His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly |
| 1 5 10 15   |
| Glu Xaa Ala Lys Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg         |
| 20 25 30  |

<210> 265  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|   |
|---|
| <400> 265   |
| His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly |
| 1 5 10 15   |

Glu Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 266  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 266  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Glu Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 267  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 267  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Glu Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 268  
 <211> 30

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 268  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Glu Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
                   20                  25                  30

<210> 269  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 269  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Glu Ala Ala Lys Glu Phe Ile Ala Trp Xaa Val Xaa Xaa Arg  
                   20                  25                  30

<210> 270  
 <211> 30  
 <212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 270

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 271

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 271

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 272

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 272  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Glu Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 273  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 273  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Glu Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Xaa  
 20 25 30

<210> 274  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 274

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 275

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 275

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 276

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>



<223> this sequence has an amidated c-terminus

<400> 276

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 277

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 277

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 278

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 278

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Glu Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
                   20                  25                  30

<210> 279  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 24, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 279  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Xaa Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 280  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 24, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 280  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Xaa Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 281  
 <211> 30

<212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 24, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 281  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Xaa Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 282  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 24, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 282  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Xaa Trp Leu Val Xaa Xaa Arg  
                   20                  25                  30

<210> 283  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 24, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 283  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Xaa Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 284  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 24, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 284  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Xaa Trp Leu Val Xaa Xaa Arg  
 20 25 30

<210> 285  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 24, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 285

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Xaa | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 286

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 24, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 286

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Xaa | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 287

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 24, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 287

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Xaa | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 288

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 288

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 289

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 289

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 290

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 290

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Glu | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Lys | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 291

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 291

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 292

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 292

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 293

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)



<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 293  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Glu Ala Ala Arg Glu Phe Ile Ala Trp Xaa Val Arg Xaa Xaa  
 20 25 30

<210> 294  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 18, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 26  
 <223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 294  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Glu Xaa Ala Arg Glu Phe Ile Ala Trp Xaa Val Arg Xaa Xaa  
 20 25 30

<210> 295  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT

<222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 295

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Glu | Xaa | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 296

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 296

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Glu | Xaa | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 297

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 24, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 297

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Xaa | Ala | Arg | Glu | Phe | Ile | Xaa | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 298

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 24, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 26

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-tetradecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 298

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Xaa | Ala | Arg | Glu | Phe | Ile | Xaa | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 299

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 18, 24, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = A6c (1-amino-1-cyclohexanecarboxylic acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-hexadecanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 299

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Xaa | Ala | Arg | Glu | Phe | Ile | Xaa | Trp | Xaa | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 300

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = N alfa-HEPES-His  
(N-alpha-(4-(2-hydroxyethyl)-1-piperazine-ethanesulfonic  
acid)-histidine

<221> VARIANT

<222> 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 300

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 301  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N alfa-HEPES-His  
 (N-alpha-(4-(2-hydroxyethyl)-1-piperazine-ethanesu  
 lfonic  
 acid)-histidine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 301  
 Xaa Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa Arg  
 20 25 30

<210> 302  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N alfa-HEPES-His  
 (N-alpha-(4-(2-hydroxyethyl)-1-piperazine-ethanesu  
 lfonic  
 acid)-histidine

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 302

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 303

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = N alfa-HEPA-His  
(N-alpha-(4-(2-hydroxyethyl)-1-piperazineacetyl)-  
histidine

<221> VARIANT

<222> 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 303

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 304

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = N alfa-HEPA-His  
(N-alpha-(4-(2-hydroxyethyl)-1-piperazineacetyl)-  
histidine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

&lt;400&gt; 304

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 305

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 1

&lt;223&gt; Xaa = N alfa-HEPA-His

(N-alpha-(4-(2-hydroxyethyl)-1-piperazineacetyl)-histidine

&lt;221&gt; VARIANT

&lt;222&gt; 2

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 29

&lt;223&gt; Xaa = beta-Ala (beta-alanine)

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 305

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 306

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 1

&lt;223&gt; Xaa = N alfa-tetradecanoyl- histadine

&lt;221&gt; VARIANT

&lt;222&gt; 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

<400> 306

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 307

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 307

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 308

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 308

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |



20

25

30

&lt;210&gt; 309

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 1

&lt;223&gt; Xaa = N alfa-tetradecanoyl- histadine

&lt;221&gt; VARIANT

&lt;222&gt; 2

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 29

&lt;223&gt; Xaa = beta-Ala (beta-alanine)

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 309

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 310

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 1

&lt;223&gt; Xaa = N alfa-tetradecanoyl- histadine

&lt;221&gt; VARIANT

&lt;222&gt; 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 310

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 311  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 311  
 Xaa Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 312  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 312  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 313  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT

<222> 2

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 313

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 314

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT

<222> 29

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 314

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 315

<211> 30

<212> PRT

<213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 315  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 316  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 1  
 <223> Xaa = N alfa-tetradecanoyl- histadine

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 316  
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 317  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-octanesulfonyl- lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 317

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 318

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = N-epsilon-dodecanesulfonyl- lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 318

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 319

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = N-epsilon-hexadecanesulfonyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 319  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
                   20                  25                  30

<210> 320  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-octanesulfonyl- lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 320  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg  
                   20                  25                  30

<210> 321  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa = N-epsilon-dodecanesulfonyl- lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 321

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 322

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = N-epsilon-hexadecanesulfonyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 322

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 323

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-octanesulfonyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 323

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 324  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = N-epsilon-hexadecanesulfonyl-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 325  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = 1-(4-decyl-piperazine)- asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |



<210> 326  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = 1-(4-dodecyl-piperazine)- asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 326  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 327  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 20  
 <223> Xaa = 1-(4-tetradecyl-piperazine)-asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 327  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg  
 20 25 30

<210> 328  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 328

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 329

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = 1-(4-decyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 329

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 330

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = 1-(4-dodecyl-piperazine) - asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 330

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 331

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = 1-(4-tetradecyl-piperazine)-asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 331

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 332

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = 1-(4-hexadecyl-piperazine) - asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 332

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 333

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = 1-(4-decyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 333

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 334

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = 1-(4-dodecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

&lt;400&gt; 334

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 335

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 30

&lt;223&gt; Xaa = 1-(4-hexadecyl-piperazine)- asparagines

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 335

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 336

&lt;211&gt; 32

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 32

&lt;223&gt; Xaa = 1-(4-decyl-piperazine)- asparagines

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 336

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 337  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = 1-(4-dodecyl-piperazine)- asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 337  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa Gly Xaa  
 20 25 30

<210> 338  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = 1-(4-tetradecyl-piperazine)-asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 338  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa Gly Xaa  
 20 25 30

<210> 339  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 339

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 340

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-(4-decyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 340

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 341

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-(4-dodecyl-piperazine) - asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 341

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 342

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-(4-tetradecyl-piperazine) -asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 342

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 343

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32



<223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 343

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 344

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2,29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = 1-(4-decyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 344

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 345

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = 1-(4-dodecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 345

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 346

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = 1-(4-tetradecyl-piperazine)-asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 346

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 347

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<400> 347

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |

20

25

30

&lt;210&gt; 348

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 28

&lt;223&gt; Xaa = 1-(4-decyl-piperazine)- asparagines

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 348

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |  |

&lt;210&gt; 349

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 28

&lt;223&gt; Xaa = 1-(4-dodecyl-piperazine)- asparagines

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 349

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |  |

&lt;210&gt; 350

&lt;211&gt; 30

&lt;212&gt; PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = 1-(4-tetradecyl-piperazine)-asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 350

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 351

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 351

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 352

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = 1-(4-decyl-piperazine) - asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 352

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 353

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = 1-(4-dodecyl-piperazine) - asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 353

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 354

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30  
 <223> Xaa =  
 1-(4-tetradecyl-piperazine)-acetyl)asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 354  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 355  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 30  
 <223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 355  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 356  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = 1-(4-decyl-piperazine)- asparagines

<221> CONFLICT

<222>

<223> this sequence has an amidated c-terminus

<400> 356

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 357

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-(4-dodecyl-piperazine) - asparagines

<221> VARIANT

<222>

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<400> 357

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 358

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-(4-tetradecyl-piperazine) -asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 358

His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |     |     |     |     |     |     |     |     |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 359  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 359 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln       | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|           |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 360  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = 1-(4-decyl-piperazine)- asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 360 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln       | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|           |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 361



<211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = 1-(4-dodecyl-piperazine)- asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 361  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa Xaa  
 20 25 30

<210> 362  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29, 31  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = 1-(4-tetradecyl-piperazine)-asparagines

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 362  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa Xaa  
 20 25 30

<210> 363  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-(4-hexadecyl-piperazine)- asparagines

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 363

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 364

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = 1-dodecylamino-glutamine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 364

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 365

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa = 1-dodecylamino-glutamine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 365

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 366

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = 1-dodecylamino-glutamine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 366

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 367

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa = 1-dodecylamino-glutamine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 367

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 368

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa =  
N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 368

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 369

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa =  
N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 369

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 370

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa =

N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 370

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

<210> 371

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa =

N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 371

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 372

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa =

N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 372

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 373

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

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<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa =

N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 373

```

His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1           5           10           15
Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg
          20           25           30

```

<210> 374  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 28  
 <223> Xaa =  
       N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)ly  
       sine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

```

<400> 374
His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1           5           10           15
Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Xaa Xaa Arg
          20           25           30

```

<210> 375  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<221> VARIANT  
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<221> VARIANT  
 <222> 28  
 <223> Xaa =  
       N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-ly  
       sine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

```

<400> 375
His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |     |     |     |     |     |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |

<210> 376  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<221> VARIANT  
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 <223> Xaa =  
 N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 376 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln       | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|           |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 377  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
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<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 377 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln       | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |



20

25

30

&lt;210&gt; 378

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 30

&lt;223&gt; Xaa =

N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-lysine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 378

His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

1

5

10

15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa

20

25

30

&lt;210&gt; 379

&lt;211&gt; 32

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 32

&lt;223&gt; Xaa =

N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 379

His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly

1

5

10

15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Gly Xaa

20

25

30

<210> 380  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa =  
       N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysi  
       ne

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 380  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Gly Xaa  
                   20                  25                  30

<210> 381  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

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 <223> Mutagen

<221> VARIANT  
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 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa =  
       N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)ly  
       sine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 381  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Gly Xaa  
                   20                  25                  30

<210> 382

<211> 32  
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<221> VARIANT  
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 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa =  
       N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-ly  
       sine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 382  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Gly Xaa  
                   20                  25                  30

<210> 383  
 <211> 32  
 <212> PRT  
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<221> VARIANT  
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 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa =  
       N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 383  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
   1                  5                  10                  15  
 Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Xaa Xaa  
                   20                  25                  30

<210> 384  
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<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa =  
N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 384

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 385

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa =  
N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 385

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 386

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

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<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

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<223> Xaa =

N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 386

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 387

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

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<223> Xaa =

N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 387

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 388

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 20

<223> Xaa =

N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 388

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 389

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

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<223> Xaa =

N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 389

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 390

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

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<223> Xaa =  
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<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 390

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Xaa | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg |     |     |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 391

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa =  
N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 391

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

<210> 392

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa =

N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 392

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 393

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa =

N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 393

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 394

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29



<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa =  
N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 394

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Xaa | Xaa | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 395

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa =  
N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 395

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 396

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa =  
N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 396

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 397

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa =  
N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 397

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 398

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30  
 <223> Xaa =  
 N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 398  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Xaa  
 20 25 30

<210> 399  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa =  
 N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

<400> 399  
 His Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly  
 1 5 10 15  
 Gln Ala Arg Arg Glu Phe Ile Ala Trp Leu Val Arg Xaa Arg Gly Xaa  
 20 25 30

<210> 400  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa =

N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 400

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 401

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa =  
N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 401

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 402

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa =  
N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-ly

sine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 402

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Gly | Xaa |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 403

&lt;211&gt; 32

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29, 31

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 32

&lt;223&gt; Xaa =

N-epsilon-(2-(4-decyl-1-piperazine)-acetyl)-lysine

&lt;221&gt; VARIANT

&lt;222&gt;

&lt;223&gt; this sequence has an amidated c-terminus

&lt;400&gt; 403

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |

&lt;210&gt; 404

&lt;211&gt; 32

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Mutagen

&lt;221&gt; VARIANT

&lt;222&gt; 2, 29, 31

&lt;223&gt; Xaa = Aib (alpha-aminoisobutyric acid)

&lt;221&gt; VARIANT

&lt;222&gt; 32

&lt;223&gt; Xaa =

N-epsilon-(2-(4-dodecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 404

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 405

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa =

N-epsilon-(2-(4-tetradecyl-1-piperazine)-acetyl)lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 405

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 406

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29, 31

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 32

<223> Xaa =

N-epsilon-(2-(4-hexadecyl-1-piperazine)-acetyl)-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 406

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Arg | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 407

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an hydroxydated c-terminus

<400> 407

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 408

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 2, 29

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an hydroxydated c-terminus

<400> 408

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   |     | 5   |     | 10  |     | 15  |     |     |     |     |     |     |     |
| Gln | Ala | Lys | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |

<210> 409  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2, 29  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 31  
 <223> Xaa = Ava (5-aminovaleric acid)

<221> VARIANT  
 <222> 32  
 <223> Xaa = Ado (12-aminododecanoic acid)

<221> VARIANT  
 <222>  
 <223> this sequence has an amidated c-terminus

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 409 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| His       | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Gln       | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa | Xaa |
|           |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |

<210> 410  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Mutagen

<221> VARIANT  
 <222> 2  
 <223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT  
 <222> 29  
 <223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT  
 <222> 31  
 <223> Xaa = N-epsilon-dodecanoyl-lysine

<221> VARIANT  
 <222>



<400> 410

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 411

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 1

<223> Xaa = Aib (alpha-aminoisobutyric acid)

<221> VARIANT

<222> 28

<223> Xaa = beta-Ala (beta-alanine)

<221> VARIANT

<222> 30

<223> Xaa = N-epsilon-decanoyl-lysine

<221> VARIANT

<222>

<223> this sequence has an amidated c-terminus

<400> 411

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Ala | Arg | Glu | Phe | Ile | Ala | Trp | Leu | Val | Arg | Xaa | Arg | Xaa |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 412

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Exemplary motif

<221> VARIANT

<222> 1

<223> Xaa = L-His, Ura, Paa, Pta, Amp, Tma-His,  
Des-amino-His, or deleted

<221> VARIANT

<222> 2

<223> Xaa = Ala, D-Ala, Aib, Acc, N-Me-Ala, N-Me-D-Ala,  
or N-Me-Gly

<221> VARIANT

<222> 3

<223> Xaa = Glu, N-Me-Glu, N-Me- Asp, or Asp

<221> VARIANT  
<222> 4  
<223> Xaa = Gly, Acc, beta-Ala, or Aib

<221> VARIANT  
<222> 5  
<223> Xaa = Thr, or Ser

<221> VARIANT  
<222> 6  
<223> Xaa = Phe, Acc, Aic, Aib, 3-Pal, 4-Pal, beta-Nal, Cha, Trp, or X1-Phe

<221> VARIANT  
<222> 7  
<223> Xaa = Thr, or Ser

<221> VARIANT  
<222> 8  
<223> Xaa = Ser, or Aib

<221> VARIANT  
<222> 9  
<223> Xaa = Asp, or Glu

<221> VARIANT  
<222> 10  
<223> Xaa = Val, Acc, Aib, Leu, Ile, Tle, Nle, Abu, Ala, or Cha

<221> VARIANT  
<222> 11  
<223> Xaa = Ser, or Thr

<221> VARIANT  
<222> 12  
<223> Xaa = Ser, or Thr

<221> VARIANT  
<222> 13  
<223> Xaa = Tyr, Cha, Phe, 3-Pal, 4-Pal, Acc, beta-Nal, or X1-Phe

<221> VARIANT  
<222> 14  
<223> Xaa = Leu, Acc, Aib, Nle, Ile, Cha, Tle, Val, Phe, or X1-Phe

<221> VARIANT  
<222> 15  
<223> Xaa = Glu, or Asp

<221> VARIANT  
<222> 16  
<223> Xaa = Gly, Acc, beta-Ala, Glu, or Aib

<221> VARIANT  
<222> 17  
<223> Xaa = Gln, Asp, Asn, or Glu

<221> VARIANT

<222> 18

<223> Xaa = Ala, Aib, Val, Abu, Tle, or Acc

<221> VARIANT

<222> 19

<223> Xaa = Ala, Aib, Val, Abu, Tle, Acc, Lys, Arg, hArg, Orn, HN-CH((CH<sub>2</sub>)<sub>n</sub>-N(R<sub>10</sub>-R<sub>11</sub>))-C(O), OR NH-CH((CH<sub>2</sub>)<sub>e</sub>-X<sub>3</sub>)-C(O)

<221> VARIANT

<222> 20

<223> Xaa = Lys, Arg, hArg, Orn, HN-CH((CH<sub>2</sub>)<sub>n</sub>-N(R<sub>10</sub>-R<sub>11</sub>))-C(O), OR NH-CH((CH<sub>2</sub>)<sub>e</sub>-X<sub>3</sub>)-C(O)

<221> VARIANT

<222> 21

<223> Xaa = Glu Asp, Leu, Aib, or Lys

<221> VARIANT

<222> 22

<223> Xaa = Phe, Pal, beta-Nal, X1-Phe, Aic, Acc, Aib, Cha, or Trp

<221> VARIANT

<222> 23

<223> Xaa = Ile, Acc, Aib, Leu, Nle, Cha, Tle, Val, Abu, Ala, or Phe

<221> VARIANT

<222> 24

<223> Xaa = Ala, Aib, or Acc

<221> VARIANT

<222> 25

<223> Xaa = Trp, beta-Nal, 3-Pal, 4-Pal, Phe, Acc, Aib, or Cha

<221> VARIANT

<222> 26

<223> Xaa = Leu, Acc, Aib, Nle, Ile, Cha, Tle, Phe, X1-Phe, or Ala

<221> VARIANT

<222> 27

<223> Xaa = Val, Acc, Aib, Leu, Ile, Tle, Nle, Cha, Ala, Phe, Abu, Lys, or X1-Phe

<221> VARIANT

<222> 28

<223> Xaa = Lys, Arg, hArg, Orn, HN-CH((CH<sub>2</sub>)<sub>n</sub>-N(R<sub>10</sub>-R<sub>11</sub>))-C(O), or NH-CH((CH<sub>2</sub>)<sub>e</sub>-X<sub>3</sub>)-C(O)

<221> VARIANT

<222> 29

<223> Xaa = Gly, beta-Ala, D-Ala, Gaba, Ava, NH-(CH<sub>2</sub>)<sub>m</sub>-C(O), Aib, Acc or D-amino acid

<221> VARIANT

<222> 30

<223> Xaa = L-or D-Arg, D-or L-Lys, D-or L-hArg, D-or L-Orn, HN-CH((CH<sub>2</sub>)<sub>n</sub>-N(R<sub>10</sub>-R<sub>11</sub>))-C(O), NH-CH((CH<sub>2</sub>)<sub>e</sub>-X<sub>3</sub>)-C(O) or deleted

<221> VARIANT

<222> 31

<223> Xaa = Gly, beta-Ala, Gaba, Ava, Aib, Acc, Ado, Arg, Asp, Aun, Aec, NH-(CH<sub>2</sub>)<sub>m</sub>-C(O), HN-CH((CH<sub>2</sub>)<sub>n</sub>-N(R<sub>10</sub>-R<sub>11</sub>))-C(O), a D-amino acid, or deleted

<221> VARIANT

<222> 32

<223> Xaa = D-or L-Lys, D-or L-Arg, D-or L-hArg, D-or L-Orn, HN-CH((CH<sub>2</sub>)<sub>n</sub>-N(R<sub>10</sub>-R<sub>11</sub>))-C(O), NH-CH((CH<sub>2</sub>)<sub>e</sub>-X<sub>3</sub>)-C(O)Ava, Ado, Aec, or deleted

<221> VARIANT

<222> 33

<223> Xaa = D-or L-Lys, D-or L-Arg, HN-CH((CH<sub>2</sub>)<sub>n</sub>-N(R<sub>10</sub>-R<sub>11</sub>))-C(O), Ava, Ado, or Aec

<400> 412

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa |
| 1   |     |     |     | 5   |     |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa |
|     |     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |
| Xaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 413

<211> 31

<212> PRT

<213> Homo sapiens

<400> 413

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Gly | Arg | Gly |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 414

<211> 32

<212> PRT

<213> Homo sapiens

<400> 414

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Tyr | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Gly | Arg | Gly | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 415

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Mutagen

<221> VARIANT

<222> 13

<223> Xaa = 125I radiolabeled Tyr

&lt;400&gt; 415

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ala | Glu | Gly | Thr | Phe | Thr | Ser | Asp | Val | Ser | Ser | Xaa | Leu | Glu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gln | Ala | Ala | Lys | Glu | Phe | Ile | Ala | Trp | Leu | Val | Lys | Gly | Arg |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |